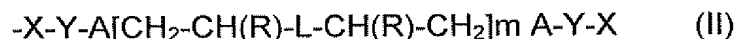
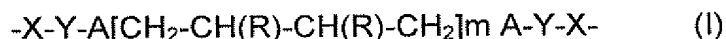


## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

### Listing of claims

1. (Withdrawn) A process for preparing a cross-linked polymer compound in a three-dimensional network wherein at least one activated polysaccharide or oligosaccharide derivative is dissolved in a polar organic solvent, comprising a radical of general formula (I) or (II)



where X represents an oxygen atom of the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a single bond, -NH-CO-group, -NH-CS-group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms or an aralkylene radical having from 7 to 40 carbon atoms, L represents a bis-thioether radical, of general formula (IIIa), bis-sulphoxide radical of general formula (IIIb), or bis-sulphone radical, of general formula (IIIc), or a bis-silane radical of general formula (IV), below:

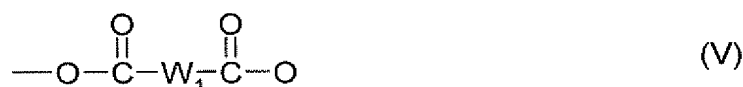




where S represents a sulphur atom, O an oxygen atom and Si a silicon atom and where -W<sub>1</sub> and W<sub>3</sub>, identical or different, each represent:

- a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms, or an aralkylene radical having from 7 to 40 carbon atoms;

- W<sub>2</sub> represents a single bond, W<sub>1</sub> an oxygen atom, a sulphur atom or a symmetrical diester of formula



-R<sub>5</sub> represents a linear or branched alkyl radical having from 1 to 5 carbon atoms or hydrogen, and R<sub>4</sub> represents the radical



where R<sub>6</sub> is (CH<sub>2</sub>)<sub>n2</sub> or oxygen and where n<sub>1</sub> varies from 0 to 3000 and n<sub>2</sub> from 0 to 10, the arylene radicals contained respectively in the radicals of general formulae (I) and (II)

being able to be substituted by one or more atoms or radicals, identical or different, of at least one halogen atom, at least one alkyl radical containing from 1 to 4 carbon atoms, at least one alkoxy radical containing from 1 to 4 carbon atoms or at least one nitro group; comprising:

reacting ethylene radicals of general formula (XI):



in which  $m1$  is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical, having from 1 to 8 carbon atoms, Y represents a single bond, -NH-CO- group, -NH-CS- group or -CO- group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms, or an aralkylene radical having from 7 to 40 carbon atoms, and where X represents  $X_1$ ,  $X_2$  or  $X_3$  equally;

on themselves by action of a free radical initiator, in order to create a three-dimensional network between the chains of the polysaccharide derivative and characterized in that this network contains a radical of general formula (I);

- or reaction of the ethylene radicals of general formula (XI) with bis-sulphydryl compounds of general formula (XIII)

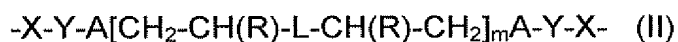


wherein S,  $W_1$ ,  $W_2$  and  $W_3$  are defined above, in the presence of a free radical initiator, in order to create a three-dimensional network between the chains of the polysaccharide derivative and characterized in that this network contains a radical of

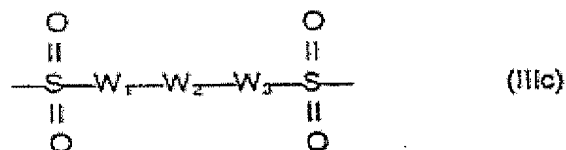
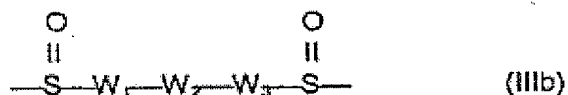
general formula (II) and where the symbol (L) is represented by a bis-thioether radical of general formula (IIIa), the radicals of general formula (IIIa) being able to be subsequently transformed into radicals of general formula (IIIb) or (IIIc) by addition of a sufficient quantity of oxidizing agent, relative to the quantity of sulphur present in the said compounds;

- or reaction of the ethylene radicals of general formula (XI) with bis-hydrogenosilane compounds of general formula (IV), in the presence of a metal catalyst, in order to create a three-dimensional network between the chains of the polysaccharide derivative and characterized in that this network contains a radical of general formula (II) and where the symbol (L) is represented by a bis-silane of general formula (IV).

2. (Currently Amended) A support material consisting essentially of a cross-linked polymer compound ~~in a three dimensional network~~, comprising a radical of general formula (I) or (II):



where X represents an oxygen atom or the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a -NH-CO-group, -NH-CS-group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms or an aralkylene radical having from 7 to 40 carbon atoms, L represents a bis-sulphoxide radical of general formula (IIIb), or bis-sulphone radical, of general formula (IIIc), or a bis-silane radical of general formula (IV), below:



where S represents a sulphur atom, O an oxygen atom and Si a silicon atom and where

- $W_1$  and  $W_3$ , identical or different, each represent:  
a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms, or an aralkylene radical having from 7 to 40 carbon atoms;
- $W_2$  represents a single bond,  $W_1$ , an oxygen atom, a sulphur atom or a symmetrical diester of formula



- $R_5$  represents a linear or branched alkyl radical having from 1 to 5 carbon atoms or hydrogen, and
- $R_4$  represents the radical



where  $R_6$  is  $(\text{CH}_2)_{n2}$  or oxygen and where  $n1$  varies from 0 to 3000 and  $n2$  from 0 to 10, provided that  $R_4$  is not an oxygen atom,

the arylene radicals contained respectively in the radicals of general formulae (I) and (II) being able to be substituted by one or more atoms or radicals, identical or different, of at least one halogen atom, at least one alkyl radical containing from 1 to 4 carbon

atoms, at least one alkoxy radical containing from 1 to 4 carbon atoms or at least one nitro group group.

wherein said polymer compound is intermolecularly cross-linked in a tri-dimensional network and is insoluble in organic solvents.

3. (Original) A support material according to claim 2, wherein the support material is in the form of a ball.

4. (Currently Amended) A support material according to claim 2, wherein the support material contains a percentage of less than 80% of said cross-linked polymer compound.

5. (Currently Amended) A support material according to claim 4, wherein the support material is comprises a mineral or an organic porous support.

6. (Withdrawn) A method of preparing a support material according to claim 2 and containing essentially a cross-linked polymer compound, wherein a polysaccharide or oligosaccharide derivative is dissolved in an organic polar solvent then precipitated in the form of at least one ball, the ball is then cross-linked in situ, wherein the ball consists essentially of the cross-linked polymer compound.

7. (Withdrawn) A method of preparing a support material according to claim 3 in the form of a precipitated ball, wherein a polysaccharide or an oligosaccharide derivative is dissolved in a polar organic solvent and that the organic solution obtained is poured onto an aqueous solution containing an anionic surfactant and an emulsion stabilizer and that the emulsion obtained is heated in order to eliminate the organic solvent.

8. (Withdrawn) A method of preparing according to claim 7, wherein the polar organic solvent is mesityl oxide, the anionic surfactant is sodium dodecyl sulphate and the

emulsion stabilizer is a polyhydroxylated derivative possessing a number of carbon atoms greater than 16.

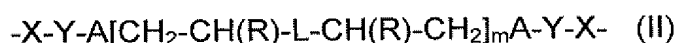
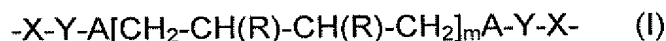
9. (Withdrawn) A method of preparing according to claim 7, wherein the ball has a dimension of 0.1-300 $\mu$ m and a specific surface area of 10-100 m<sup>2</sup>/g.

10. (Withdrawn) A method of preparing according to claim 7, wherein the precipitated ball of a polysaccharide derivative is cross-linked in situ, so that the cross-linked polymer compound obtained in the form of a ball constituting a support material which is insoluble in a polar organic solvent, and the ball of support material has a dimension of 0.1-300 $\mu$ m and a specific surface area of 10-100 m<sup>2</sup>/g.

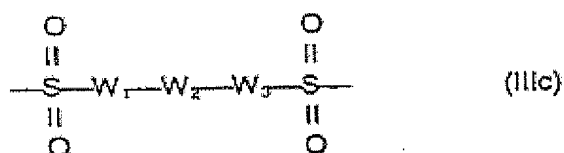
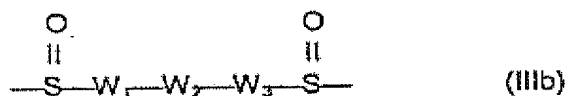
11. (Withdrawn) A method of preparing a support material according to claim 4, comprising adding a solution of an organic solvent containing the polysaccharide or oligosaccharide derivative to a powdery commercial porous support, heating the medium in order to evaporate the solvent, suspending the powder obtained and containing the polysaccharide or oligosaccharide derivative in a solvent in which the compounds are insoluble and refluxing the medium; adding a cross-linking agent after reaction, and filtering and washing the suspension in a polar organic solvent in which the polysaccharide or oligosaccharide derivatives are soluble in order to eliminate these later.

12. (Withdrawn) A process for preparing and separating enantiomers by employing means of liquid, gaseous or supercritical chromatography using polar organic solvents, comprising exposing enantiomers to a support material according to claim 2.

13. (Currently Amended) A percolation membrane comprising a cross-linked polymer compound in a three-dimensional network, comprising a radical of general formula (I) or (II):



where X represents an oxygen atom or the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a -NH-CO-group, -NH-CS-group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms or an aralkylene radical having from 7 to 40 carbon atoms, L represents a bis-sulphoxide radical of general formula (IIIb), or bis-sulphone radical, of general formula (IIIc), or a bis-silane radical of general formula (IV), below:



where S represents a sulphur atom, O an oxygen atom and Si a silicon atom and where

- $W_1$  and  $W_3$ , identical or different, each represent:  
a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms, or an aralkylene radical having from 7 to 40 carbon atoms;
- $W_2$  represents a single bond,  $W_1$ , an oxygen atom, a sulphur atom or a symmetrical diester of formula





- R<sub>5</sub> represents a linear or branched alkyl radical having from 1 to 5 carbon atoms or hydrogen, and
- R<sub>4</sub> represents the radical



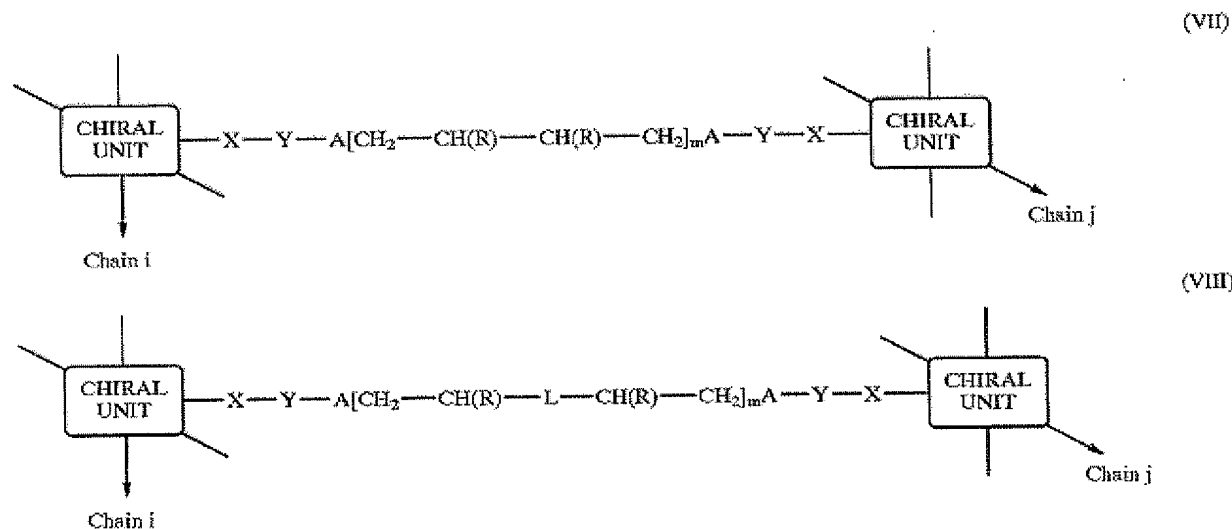
where R<sub>6</sub> is (CH<sub>2</sub>)<sub>n2</sub> or oxygen and where n<sub>1</sub> varies from 0 to 3000 and n<sub>2</sub> from 0 to 10, provided that R<sub>4</sub> is not an oxygen atom,

the arylene radicals contained respectively in the radicals of general formulae (I) and (II) being able to be substituted by one or more atoms or radicals, identical or different, of at least one halogen atom, at least one alkyl radical containing from 1 to 4 carbon atoms, at least one alkoxy radical containing from 1 to 4 carbon atoms or at least one nitro group group.

wherein said polymer compound is intermolecularly cross-linked in a tri-dimensional network and is insoluble in organic solvents.

14. (Withdrawn) A process of organic synthesis in a heterogeneous phase comprising a support material according to claim 2.

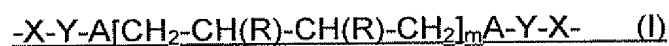
15. (Previously Presented) A support material according to claim 2, wherein the radical of general formulae (I) or (II) is bound to at least one osidic chiral unit of a linear, branched or cyclic linkage of a polysaccharide or oligosaccharide derivative according to the general formulae (VII) and (VIII):



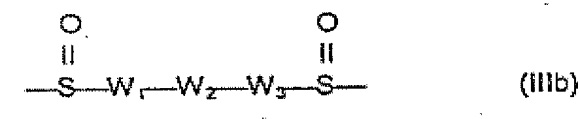
where X, Y, A, R, L each have the same meaning as defined in claim 2 and the chiral unit represents an osidic chiral unit of a linear, branched or cyclic linkage of a polysaccharide or oligosaccharide derivative, wherein "chain i" and "chain j" represent chiral units at each end of the radicals of formulae (I) and (II), situated as separate chains or separate linkages of osidic units, within the polysaccharide or oligosaccharide.

16. (Withdrawn) A support material according to claim 2, wherein L corresponds to formula (IIIa).

17. (Currently Amended) A support material according to claim 2, wherein L corresponds to formula (IIIb) consisting essentially of a cross-linked polymer compound in a three-dimensional network, comprising a radical of general formula (I) or (II):



where X represents an oxygen atom or the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a -NH-CO-group, -NH-CS-group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms or an aralkylene radical having from 7 to 40 carbon atoms, L represents a bis-sulphoxide radical of general formula (IIIb),



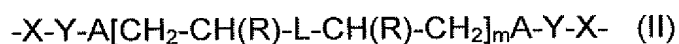
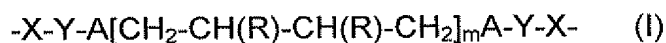
where S represents a sulphur atom, O an oxygen atom and where

- W<sub>1</sub> and W<sub>3</sub>, identical or different, each represent:  
a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms, or an aralkylene radical having from 7 to 40 carbon atoms;
- W<sub>2</sub> represents a single bond, W<sub>1</sub>, an oxygen atom, a sulphur atom or a symmetrical diester of formula

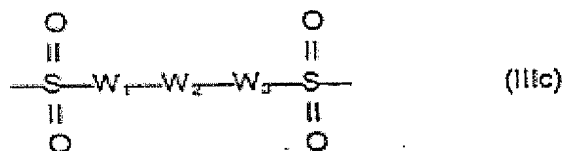


the arylene radicals contained respectively in the radicals of general formulae (I) and (II) being able to be substituted by one or more atoms or radicals, identical or different, of at least one halogen atom, at least on alkyl radical containing from 1 to 4 carbon atoms, at least one alkoxy radical containing from 1 to 4 carbon atoms or at least one nitro group.

18. (Currently Amended) A support material consisting essentially of a cross-linked polymer compound ~~in a three-dimensional network~~, comprising a radical of general formula (I) or (II):



where X represents an oxygen atom or the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a -NH-CO-group, -NH-CS-group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms or an aralkylene radical having from 7 to 40 carbon atoms, L represents a bis-sulphone radical of general formula (IIIc):



wherein S represents a sulphur atom and O an oxygen atom and wherein

- $W_1$  and  $W_3$ , identical or different, each represents:  
a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms, or an aralkylene radical having from 7 to 40 carbon atoms;
- $W_2$  represents a single bond,  $W_1$ , an oxygen atom, a sulphur atom or a symmetrical diester of formula

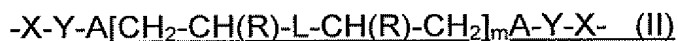


the arylene radicals contained respectively in the radicals of general formulae (I) and (II) being able to be substituted by one or more atoms or radicals, identical or different, of at least one halogen atom, at least one alkyl radical containing from 1 to 4 carbon

atoms, at least one alkoxy radical containing from 1 to 4 carbon atoms or at least one nitro group group.

wherein said polymer compound is intermolecularly cross-linked in a tri-dimensional network and therefore is insoluble in organic solvent.

19 (Currently Amended) ~~A support material according to claim 2, wherein L~~  
~~corresponds to formula (IV) consisting essentially of a cross-linked polymer compound~~  
in a three-dimensional network, comprising a radical of general formula (I) or (II):



where X represents an oxygen atom or the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a -NH-CO-group, -NH-CS-group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms or an aralkylene radical having from 7 to 40 carbon atoms, L represents a bis-silane radical of general formula (IV), below:



where Si is a silicon atom and where

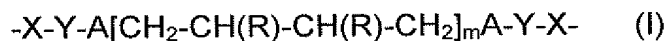
- R<sub>5</sub> represents a linear or branched alkyl radical having from 1 to 5 carbon atoms  
or hydrogen, and
- R<sub>4</sub> represents the radical



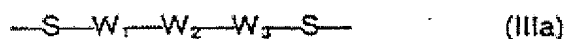
where  $\text{R}_6$  is  $(\text{CH}_2)_{n2}$  or oxygen and where  $n1$  varies from 0 to 3000 and  $n2$  from 0 to 10, provided that  $\text{R}_4$  is not an oxygen atom.

the arylene radicals contained respectively in the radicals of general formulae (I) and (II) being able to be substituted by one or more atoms or radicals, identical or different, of at least one halogen atom, at least one alkyl radical containing from 1 to 4 carbon atoms, at least one alkoxy radical containing from 1 to 4 carbon atoms or at least one nitro group.

20. (Currently Amended) A support material consisting essentially of a cross-linked polymer compound in ~~a three dimensional network~~, comprising a radical of general formula (I) or (II):



where X represents an oxygen atom or the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a single bond, -NH-CO-group, -NH-CS-group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms or an aralkylene radical having from 7 to 40 carbon atoms, L represents a bis-thioether radical, of general formula (IIIa) below:



where S represents a sulphur atom, and where

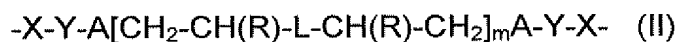
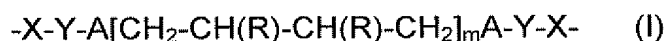
- $W_1$  and  $W_3$ , identical or different, each represent:  
a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms, or an aralkylene radical having from 7 to 40 carbon atoms;
- $W_2$  represents an oxygen atom, a sulphur atom or a symmetrical diester of formula



the arylene radicals contained respectively in the radicals of general formulae (I) and (II) being able to be substituted by one or more atoms or radicals, identical or different, of at least one halogen atom, at least one alkyl radical containing from 1 to 4 carbon atoms, at least one alkoxy radical containing from 1 to 4 carbon atoms or at least one nitro group group.

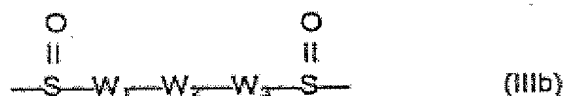
wherein said polymer compound is intermolecularly cross-linked in a tri-dimensional network and is insoluble in organic solvents.

21. (Currently Amended) A support material consisting essentially of a cross-linked polymer compound ~~in a three-dimensional network~~, comprising a radical of general formula (I) or (II):



where X represents an oxygen atom or the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a -NH-CO-group, -NH-CS-group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having

from 6 to 18 carbon atoms or an aralkylene radical having from 7 to 40 carbon atoms, L represents a bis-sulphoxide radical of general formula (IIIb) below:



where S represents a sulphur atom, O an oxygen atom and where

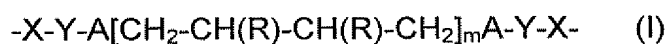
- $\text{W}_1$  and  $\text{W}_3$ , identical or different, each represent:  
a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms, or an aralkylene radical having from 7 to 40 carbon atoms;
- $\text{W}_2$  represents a single bond,  $\text{W}_1$ , an oxygen atom, a sulphur atom or a symmetrical diester of formula



the arylene radicals contained respectively in the radicals of general formulae (I) and (II) being able to be substituted by one or more atoms or radicals, identical or different, of at least one halogen atom, at least one alkyl radical containing from 1 to 4 carbon atoms, at least one alkoxy radical containing from 1 to 4 carbon atoms or at least one nitro group group.

wherein said polymer compound is intermolecularly cross-linked in a tri-dimensional network and is insoluble in organic solvents.

22. (Currently Amended) A support material consisting essentially of a cross-linked polymer compound in a ~~three-dimensional network~~, comprising a radical of general formula (I) or (II):





where X represents an oxygen atom or the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a single bond, -NH-CO-group, -NH-CS-group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms or an aralkylene radical having from 7 to 40 carbon atoms, L represents a bis-silane radical, of general formula (IV), below:



where Si represents a silicon atom and where

- $R_5$  represents a linear or branched alkyl radical having from 1 to 5 carbon atoms or hydrogen, and
- $R_4$  represents the radical



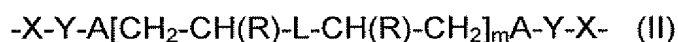
where  $R_6$  is  $(CH_2)_{n2}$  or oxygen and where  $n1$  varies from 0 to 3000 and  $n2$  from 0 to 10, provided that  $R_4$  is not an oxygen atom,

the arylene radicals contained respectively in the radicals of general formulae (I) and (II) being able to be substituted by one or more atoms or radicals, identical or different, of at least one halogen atom, at least one alkyl radical containing from 1 to 4 carbon atoms, at least one alkoxy radical containing from 1 to 4 carbon atoms or at least one nitro group.

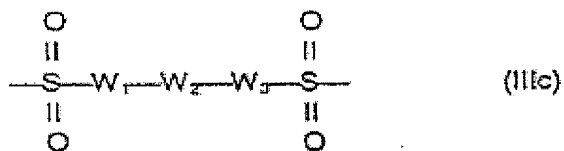
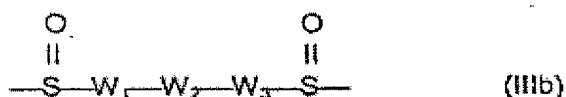
wherein said polymer compound is intermolecularly cross-linked in a tri-dimensional network and is insoluble in organic solvents.

23. (New) A percolation membrane comprising a cross-linked polymer compound in a three dimensional network as defined in claim 20.

24. (New) A support material consisting essentially of a cross-linked polymer compound comprising a radical of general formula (II):



where X represents an oxygen atom or the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a -NH-CO-group, -NH-CS-group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms or an aralkylene radical having from 7 to 40 carbon atoms, L represents a bis-sulphoxide radical of general formula (IIIb), or bis-sulphone radical, of general formula (IIIc), or a bis-silane radical of general formula (IV), below:



where S represents a sulphur atom, O an oxygen atom and Si a silicon atom and where

–  $W_1$  and  $W_3$ , identical or different, each represent:

a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms, or an aralkylene radical having from 7 to 40 carbon atoms;

- $W_2$  represents a single bond,  $W_1$ , an oxygen atom, a sulphur atom or a symmetrical diester of formula



- $R_5$  represents a linear or branched alkyl radical having from 1 to 5 carbon atoms or hydrogen, and
- $R_4$  represents the radical



where  $R_6$  is  $(CH_2)_{n2}$  or oxygen and where  $n1$  varies from 0 to 3000 and  $n2$  from 0 to 10, provided that  $R_4$  is not an oxygen atom,

the arylene radicals contained respectively in the radicals of general formulae (I) and (II) being able to be substituted by one or more atoms or radicals, identical or different, of at least one halogen atom, at least one alkyl radical containing from 1 to 4 carbon atoms, at least one alkoxy radical containing from 1 to 4 carbon atoms or at least one nitro group,

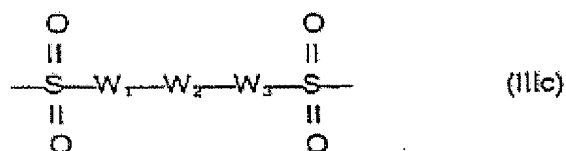
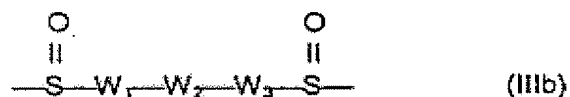
wherein said polymer compound is intermolecularly cross-linked in a tri-dimensional network and is insoluble in organic solvents.

25. (New) A percolation membrane comprising a cross-linked polymer compound in a three-dimensional network, comprising a radical of general formula (I):



where X represents an oxygen atom or the group -NH, m is an integer other than zero equal at most to 5, R represents a hydrogen atom or a substituted or non-substituted, linear or branched alkyl radical having from 1 to 8 carbon atoms, Y represents a -NH-CO-group, -NH-CS-group or -CO-group, A represents a single bond, a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms or an aralkylene radical having from 7 to 40 carbon atoms, L

represents a bis-sulphoxide radical of general formula (IIIb), or bis-sulphone radical, of general formula (IIIc), or a bis-silane radical of general formula (IV), below:



where S represents a sulphur atom, O an oxygen atom and Si a silicon atom and where

- $W_1$  and  $W_3$ , identical or different, each represent:  
a linear or branched alkylene radical having from 1 to 21 carbon atoms, an arylene radical having from 6 to 18 carbon atoms, or an aralkylene radical having from 7 to 40 carbon atoms;

- $W_2$  represents a single bond,  $W_1$ , an oxygen atom, a sulphur atom or a symmetrical diester of formula



- $R_5$  represents a linear or branched alkyl radical having from 1 to 5 carbon atoms or hydrogen, and
- $R_4$  represents the radical



where  $R_6$  is  $(\text{CH}_2)_{n2}$  or oxygen and where  $n1$  varies from 0 to 3000 and  $n2$  from 0 to 10, provided that  $R_4$  is not an oxygen atom,

the arylene radicals contained respectively in the radicals of general formulae (I) and (II) being able to be substituted by one or more atoms or radicals, identical or different, of at least one halogen atom, at least one alkyl radical containing from 1 to 4 carbon atoms, at least one alkoxy radical containing from 1 to 4 carbon atoms or at least one nitro group,

wherein said polymer compound is intermolecularly cross-linked in a tri-dimensional network and is insoluble in organic solvents.